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ABSTRACT

This paper discusses issues surrounding the delivery of interactive television systems at Grand Valley State University in Michigan (GVSU). Interactive television (ITV) systems are defined as those systems that connect two or more sites for the purpose of two-way audio and video communication. ITV systems can enable learners to work cooperatively in teams, to develop critical thinking skills, to practice complex problem solving, to be self-directed lifelong learners, and to practice effective communication skills. An instructional design that works well in a traditional classroom may need to be adapted to the ITV environment. As in traditional classroom instruction, the degree to which faculty are skilled in managing the instructional environment is the greatest determining factor in student learning and satisfaction. Therefore, a comprehensive and effective faculty selection and professional development program must be established for training faculty who will teach on the ITV system. Recommendations are offered to guide this process. The successful implementation of a course in an ITV environment requires substantially more planning and effort than is needed for teaching that course in a traditional classroom environment. For that reason, many educational institutions have established faculty compensation systems that recognize this extra effort and time commitment. The compensation system at GVSU has three components: a planning stipend, compensation for extra student load, and a teach-back factor which operates in tandem with travel reimbursement. (SWC)

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Critical Issues in Interactive Television Delivery: Instructional Quality, Faculty Development and Faculty Compensation

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Critical Issues in Interactive Television Delivery: Instructional Quality, Faculty Development and Faculty Compensation

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Introduction: The Interactive Television Explosion

It is only a mild exaggeration to refer to the rapid proliferation of interactive television (ITV) systems in Michigan and nationwide as an "explosion". Nearly every secondary and postsecondary educational institution either currently has one or more interactive television classroom(s), has received funding and is planning for the installation of an ITV classroom, or has been a part of an effort to secure funding that will enable them to construct one.

Interactive television systems are defined as those systems that connect two or more sites for the purpose of two-way audio and video communication. In these systems, everyone can both see and hear the people in all sites. When used for educational purposes, an instructor typically has students at his/her "home" site, and students in one or more "remote" sites. However, the instructor may choose to originate from one of the remote sites from time-to-time, thereby making what was previously the home site a remote site, and vice-versa.

Interactive television classrooms may be connected together by any of several technologies, including telephone lines, fiberoptic cable, coaxial cable, microwave, etc. When long distances exist between sites, the most common method of connectivity is via a T-1 telephone line and video compression technologies. Readers who are interested in technological details or in detailed information with regard to the typical classroom technological configurations are referred to the the reference list at the end of this article. For the remainder of this discussion, it is assumed that the reader has a working knowledge of interactive television technologies and the general teaching and learning protocols that are found in these multisite classrooms.

The benefits of having such a classroom and system are well documented and include the ability to expand "low-enrollment" (advanced) curriculum offerings, the ability to offer comprehensive degree programs to "remote" locations which have insufficient

numbers of students to permit full degree programs "on-site", and in general to expand access to the benefits of otherwise unavailable educational opportunities. Thus interactive television systems promote equity of access, an important and worthwhile goal.

However, while the promise and apparent future of interactive television are bright, there are also critical issues and implementation challenges which must be addressed. Among the most important of these are questions of course and program quality, and the implications of these needs for ITV-related faculty professional development and faculty compensation.

Program/Instructional quality:

The issue of the quality of instruction offered via ITV has manifested itself in four key questions as follows:

> Question # 1: Is student achievement of course objectives in ITV classes equivalent to student achievement in "traditional" classroom settings?
>
> Question #2: Do the communication technologies used in the ITV environment enable sufficient teacher-student and student-student interaction to enable serendipitous student learning which extends beyond stated course objectives?
>
> Question #3: Do students and teachers find these types of interactions to be fulfilling and satisfying?
>
> Question #4: Can ITV classroom environments lend themselves to emerging teaching and learning patterns or does their design force the instructor into reliance on the didactic lecture and other traditional "teacher-centered" types of pedagogy.

The first question has been answered in the affirmative. Research study after research study has failed to find a significant difference in the attainment of course objectives by students in "traditional" classroom settings and those in ITV environments (Moore, M.G. and Kearsley, G., 1993) A premier source for studies of this type is "The American Journal of Distance Education" (see reference list). The

reader is encouraged to use that periodical and the ERIC database to investigate that issue in more detail.

The second question is more difficult to answer. The idea that much of the learning that takes place in a classroom occurs as a result of spontaneous and serendipitous class discussion is strongly held by many experienced instructors. If the ITV classroom cannot support that type of spontaneous discussion, it would be a loss indeed. Fortunately, some instructors have found certain techniques that promote the type of freewheeling class discussions that enable serendipitous learning to take place. In many cases those instructors like to abandon the classroom "teaching station" in favor of sitting with their students at the home site, and activating the student camera so that all students in all sites and the instructor are engaging in a somewhat egalitarian discussion format. These instructors note that the closer they (the instructor) sits to the front of the classroom, the more that students will expect them to lead the discussion. Conversely, if they want students to control or lead the discussion, they will sit near the back of the room. Thus the answer to the second question appears to be yes, but only if the instructor plans for whole-class multisite discussions, and implements strategies to assure that using the teaching station does not diminish the opportunities for students to communicate with one another and learn from one another in the process.

The question of user satisfaction is one that must be continually asked by system implementation personnel. If we create systems that are technologically difficult to use, or that are continually frustrating, then ITV will fail. At GVSU we monitor this issue by continually asking students and faculty members to respond to questionnaires which measure their levels and sources of frustration and satisfaction with the ITV experience. We do this near the completion of every ITV course, and use the data to try to improve the system in meaningful ways. We use the resulting data to help design and refine the ITV professional development/training program. Additionally, we encourage faculty members to use these questionnaires (approximately) a third of the way throughout he class, and use the data themselves as a classroom assessment and improvement tool. We also survey faculty with regard to their satisfaction levels and sources of frustration.In short, only the user (students and faculty members) can tell us the degree to which they

are finding the ITV experience to be a satisfying one, and how we can make it more satisfying. We ask them for feedback, and we do our best to take action to improve the classroom environment in accord with what they tell us.

The fourth quality issue is of paramount importance. We must not create an instructional environment that relies on pedagogical methods that are dying and have been proven themselves inadequate for enabling the types of learning that are being demanded by our increasingly complex society. In short, we must develop and implement ITV systems that enable learners to work cooperatively in teams, to develop critical thinking skills, to practice complex problem solving, to be self-directed lifelong learners and to practice effective communication skills. Thus faculty members and students must be able to use essentially every type of learning strategy that can be used in a traditional classroom.

Fortunately, all learning strategies seem to be accessible to the creative ITV instructor, particularly if careful planning and sound principles of instructional design are employed. Instructional design planning models which seem to lend themselves particularly well to the ITV environment are available (Davis, Alexander and Yelon, 1974). Additionally,every learning strategy that has been employed in a traditional classroom seems to be adaptable to the ITV environment, and some are even enhanced. It has also become clear that planning a course for the ITV delivery has forced instructors to rethink their instructional design and activities, and has often led to improved classroom processes.

In summary, it seems fair to say that ITV quality issues are being successfully addressed if system managers and faculty are willing and able to spend the time and effort required for careful planning. In instances where quality has seemed to be sacrificed, it is usually because educators have tried to take short cuts and have not undertaken the substantial planning that is critical to quality assurance. Using an instructional design that works well in a traditional classroom without rethinking its application in an ITV environment is a sure path to failure and frustration. Unfortunately when this occurs, the response is often to blame the ITV system itself. The fact that many instructors in all disciplines are offering excellent learning experiences in ITV classrooms clearly supports the

contention that these systems can lend themselves to the highest quality instructional delivery.

Faculty Professional Development/training

As is the case with traditional classroom experiences, the degree to which faculty are skilled in managing the instructional environment is the greatest determining factor in student learning and satisfaction. Thus it is clear that a comprehensive and effective faculty selection and professional development program must be established for training faculty who will teach on the ITV system. The following recommendations are offered to guide these processes:

1. Select faculty who want to teach in the ITV environment. Do not assign ITV courses to new faculty who do not know what ITV is, nor have a commitment to its success. Do not assign faculty to ITV courses against their will.

2. Provide an initial training session at least three months prior to the date that their class/course is scheduled to start. This will allow them time to rethink their instructional design, and adapt learning activities for successful implementation in the ITV environment. It will also allow them time to redo their graphics either on the computer and/or to take advantage of the 4(wide) by 3(high) aspect ratio of television and the ITV document camera. Finally, it will provide enough time for them to write for permission to use copyrighted materials in the ITV environment.

3. At the initial training session, provide some practice in operation of the ITV classroom equipment. Provide a room schedule for the current term so that faculty can determine when they can access the ITV room to practice with the equipment. Explain to them how they can get a key to access the room, and procedures they should follow to schedule their practice sessions.

4. Provide them with an instructional design model that lends itself well to planning for ITV instruction.

5. Establish assessment-driven goals and objectives for the training process and explain them to faculty. Ask if they have additional

goals or objectives that should be incorporated. If they do, be sure to include those as well.

6. Consider developing an implementation checklist that tells faculty everything they will need to do from the time they go to unlock the door before class until they lock it after class. Go over the checklist step-by-step.

7. Describe any communication that ITV students receive prior to the first day of class. Recommended communication with students includes a letter informing them (and their parents, if the system is operating in a K-12 environment) that they will be participating in an interactive television environment. Describe some of the advantages of participating in such an environment, and also describe some of the challenges they will face.

8. Provide faculty members with suggestions for helping students become oriented to the ITV environment on the first day of class. Help them think through how they will have students introduce themselves. Help them understand the concerns that students may have, and to be prepared to reduce student uncertainty and answer student questions about the ITV experience.

9. Help faculty members think through the substantial logistical issues that distance education delivery systems must overcome. What methods of communication are available for use by students and faculty? How may telephones, fax machines and mail systems be used effectively? How will students transport papers to the instructor? When will the instructor be available to receive phone calls? Will exams use a proctor? Etc.

10. Help faculty members think about what should appear on the syllabus. Ask them to consider whether most (nearly all) handouts that are to be used throughout the class can be placed with the syllabus into a "coursepack" which could be sent to each site for each student prior to the first day of class.

11. Help faculty develop plans for assuring that students at all sites will be active and participative learners, and that students in all sites come to feel that they are in one class together.

12. Suggest presentation styles and techniques that work well "on-camera".

13. Discuss such legal issues as copyright law, having students sign telecommunication release forms, intellectual property rights, etc. Note that the option of videotaping the class is theirs and theirs alone. If they opt to make a tape of the class, offer to mail it to students in case of technological failures, bad-weather cancellations at one or more remote sites, etc.

14. Discuss the student feedback questionnaires that will be used at the end of the course to improve the ITV system. Assure the faculty that data will not be kept by section nor used as a faculty evaluation tool. Encourage faculty to use the forms themselves approximately one-third of the way through the course, and to use the data to revise some of their classroom procedures.

15. Provide faculty with lists sources of support and information available to them. This list could include books, periodicals, professional associations, and websites which could provide them with access to other professional educators who are teaching in ITV environments.

16. Be sure they know what sources of support they can get from your office. Establish an E-mail list so everyone who is working on the system can ask questions of and get answers from one-another.

17. Encourage faculty to practice teaching on the system at least three times before their first class meets. Offer to provide feedback to them either live or by reviewing the videotape they should make of their practice session.

18. Establish a faculty compensation system that rewards faculty for doing the things described above that will help them be more effective on the ITV system. The faculty compensation system will be discussed in more detail later in this article.

It is recognized that the steps described above assume that faculty are willing and able to plan carefully for their ITV teaching experience. It is also recognized that some faculty members will be more willing than others to thoroughly prepare themselves for this

experience. While it is difficult to make all faculty equally competent for their ITV assignment, it is our responsibility as system implementers to prepare a comprehensive ITV training program for those who are far-sighted enough to take advantage of it.

Faculty Compensation

There is no doubt that successful implementation of a course in an interactive television environment requires substantially more planning and effort than is true for teaching that course in a traditional classroom environment. For that reason, many educational institutions have established faculty compensation systems that recognize this extra effort and time commitment. Grand Valley State University has established an ITV compensation system that takes effect when either of the following conditions exists:

A. When the faculty member has never taught on the ITV system before, and/or

B. When the course being offered has not previously been taught on the ITV system.

The net effect of these conditions is to encourage faculty members to teach on the ITV system, and also to encourage departments to expand the variety of courses available via ITV.

The GVSU compensation system has three components: a) a planning stipend, b) compensation for extra student load, and c) a teach-back factor which operates in tandem with travel reimbursement.

Planning Compensation:

In order to receive planning compensation, the GVSU faculty member is required to:

1. Modify the course's instructional design to build in optimal student interaction and involvement in the learning process.

2. Redesign instructional graphics to conform to the four-wide by three-high aspect ratio of television. Many instructors will

computerize their graphics as they perform this transformation.

3. Secure licenses/permissions to use copyrighted materials in a closed television environment.

4. Learn to effectively manipulate the ITV equipment and controls.

5. Participate in a minimum of three practice sessions on the ITV system.

6. Prepare and distribute to all sites a handout packet which contains the course syllabus and as many of the handouts as possible that are to be distributed to students during the course.

Load Considerations:

In ITV courses at GVSU, the students seated in the same classroom with the instructor are considered to constitute "load". Students in remote sites, then, can be considered to be "overload". If there are fewer than five students in the remote site(s), the "overload" compensation is $500. If there are between six and fifteen students in the remote site(s), the compensation increases at a rate of $100 per student. There is a maximum of $1500 that may be accrued in overload compensation in this way. If there are more than fifteen students in remote sites, the faculty member could ask that the remote sites constitute a second "load".

Teach-back factor:

If faculty members drive to a remote site and "teach-back", they are eligible for travel reimbursement (mileage + per diem + hotel) as appropriate. Additionally, they are eligible for "teach-back" compensation in varying amounts, depending on the distance they travel from main campus. For example, faculty members who "teach back" from Traverse City or similar distances will be eligible to receive $300 per trip in addition to travel reimbursement. Faculty members who teach back from West Shore Community College or similar distances will be eligible to receive $200 per trip in teach-

back funds and those who teach back from Petoskey or similar distances will be eligible to receive $400 per trip. There is a cap of three teach-back reimbursements per semester. Having this system in place encourages faculty members to travel to the remote sites at least once during the term. We have found that this contact is a prime source of student satisfaction.

The faculty compensation system is summarized in table 1.

Insert Table 1 here

The faculty compensation system developed and implemented at GVSU supports and encourages careful planning, teaching from remote sites and participation by a wide variety of faculty members teaching a wide variety of courses.

Summary:

The three elements addressed in this article, instructional quality, ITV faculty development, and faculty compensation are interdependent. Each of the three is dependent upon the careful execution of the other two. While those of us working in system implementation at Grand Valley State University recognize the need for continuously improving each of these three systems, we are gratified that faculty have worked so cooperatively with administrators and technicians to implement this initial effort.

Author's Biographical Sketches

Howard Major and Nancy Levenburg are co-owners of **Distance Learning Dynamics**, a distance education consulting and faculty development firm. They are both experienced college and university faculty members and administrators. Nancy teaches on-line courses as well as "traditional" face-to-face courses, and is a UCLA certified on-line instructor. Howard has taught in several high schools, been a high school library media specialist, a high school principal and interim superintendent of schools. **Distance Learning Dynamics** is located at 183 Lincoln Hill Drive, Battle Creek, MI 49015. Phone/fax: 616-968-5292. e-mail: HowardT908@AOL.COM

Table 1

Compensation	Planning (1st time course)	Teach-Back Factor	Travel
Load	$1,500	Per map	Mileage + Per Diem + Hotel
Overload $500 min. $1,500 max.	$1,500	Per map	Mileage + Per Diem + Hotel
Adjunct	$1,500	Per map	Mileage + Per Diem + Hotel